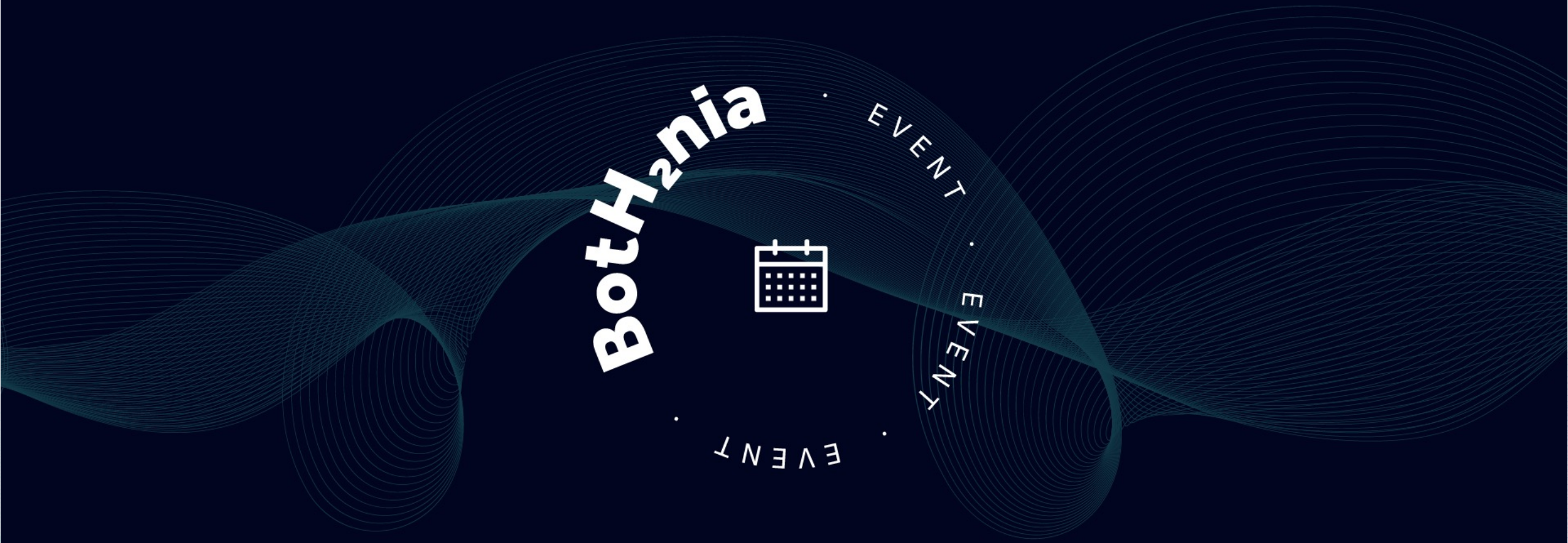
POHJOIS-POHJANMAA
COUNCIL OF OULU REGION



BotH$_2$nia goes Oulu & Raahe 5.–6.5.2022

This is a presentation given at the event Both$_2$nia Goes Oulu & Raahe on 5.–6.5.2022.

Both$_2$nia is a network of operators interested in hydrogen. The objective of the network is to create a Nordic hydrogen cluster around the Baltic Sea, beginning with the Bothnian Bay. Both$_2$nia strengthens the position of the north in the European hydrogen industry!

Both$_2$nia invites all businesses, research institutes, investors, municipalities and cities to roll up their sleeves for a greener future.

Please notice that the presentation has been modified to comply with the Accessibility Directive. In case for need the original material, please contact Minna Näsman (minna.nasman@both2nia.com).

SUNFIRE ELECTROLYSIS

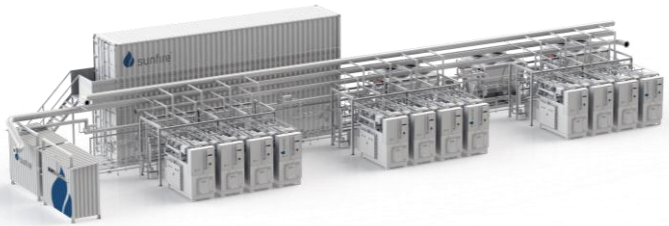
Green Hydrogen and Syngas for industrial use

6 May 2022

Sunfire is a leading industrial electrolysis company

Solutions & Markets

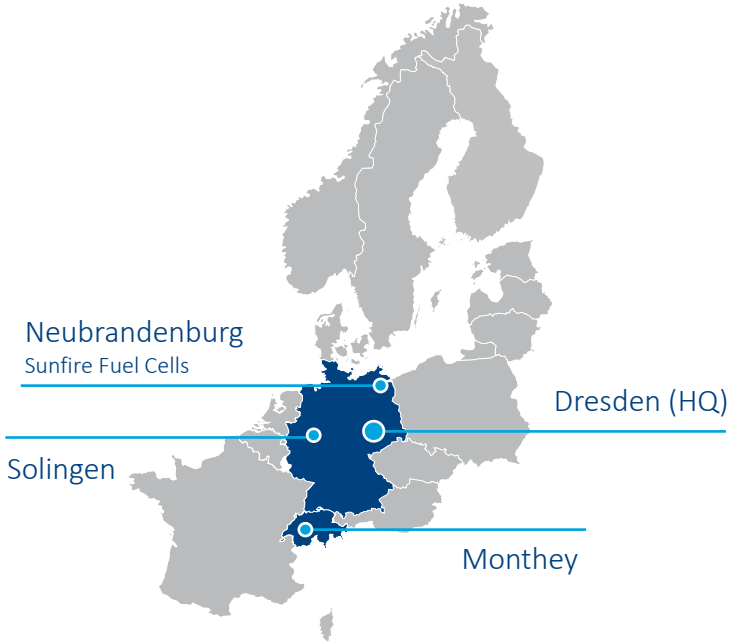
Pressurized Alkaline Electrolyzers



Solid Oxide (SOEC) Electrolyzers

Steel | Refineries | Utilities | Chemicals | Mobility

Company Sites

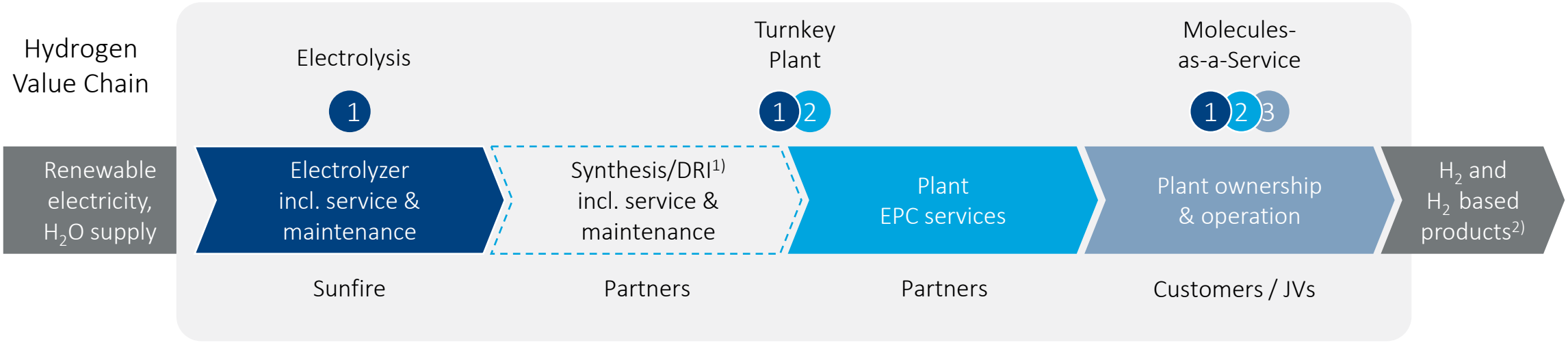


> 70	> 250 MW	100 MW	> 500 MW/year	> 370	> EUR 200 m
Electrolysis projects[1)]	Installed capacity[1)]	Largest electrolyzer installation	Production capacity as of 2023	Talented employees	Private and public funding

1) Including projects from predecessor alkaline company “IHT SA” prior to the acquisition by Sunfire

BUSINESS MODEL

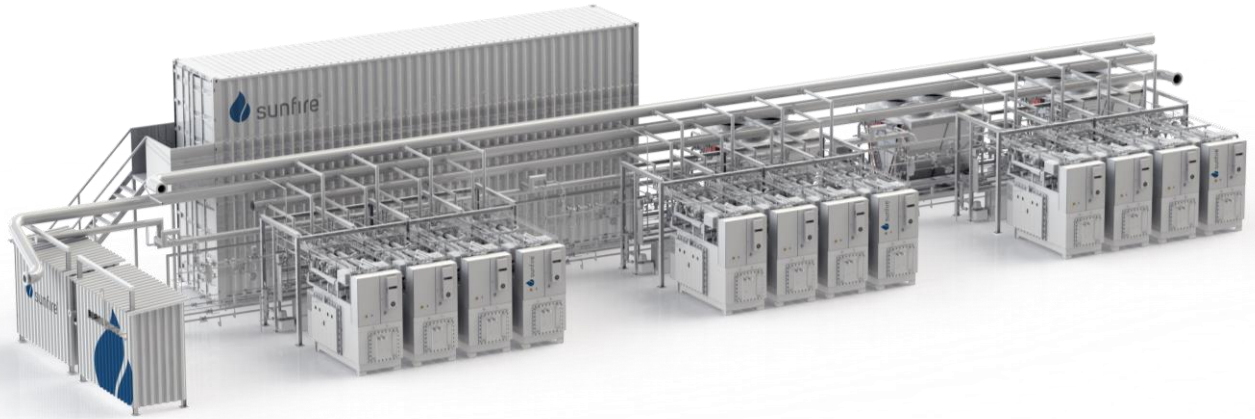
We develop, manufacture and service pressurized alkaline & solid oxide electrolyzers



1) Direct Reduced Iron Process 2) Renewable hydrogen-based products include steel pellets, ammonia, methanol, jet fuel, gasoline, etc.

PRODUCTS

Sunfire’s unique electrolyzer portfolio covers SOEC and Alkaline technologies



Sunfire-HyLink Alkaline

Ultra-reliable pressurized electrolysis solution with over 30 years of proven runtime

Sunfire-HyLink SOEC

Highest-efficiency steam electrolysis with lowest capacity need of renewable electricity

Sunfire-SynLink SOEC

Co-electrolysis of steam & CO_2 to syngas for a simple production of e-Fuels and chemical products

ALKALINE

Our pressurized alkaline electrolyzers are the most reliable solution for H_2 production

Renewable hydrogen as
feedstock and energy carrier

Sunfire-HyLink Alkaline

Core Advantages

Ultra-reliable and proven technology
with demonstrated system runtime > 30 years

Competitive pricing
reduces capital requirements for projects

Pressurized hydrogen production (30 bar(g))
without extra investments into compressors

REFERENCES

Sunfire is realizing large-scale projects based on pressurized alkaline technology

AT

Demo4Grid
3 MW

Industrial Energy

In operation since 2021

DE

Hydrogen
Center 10 MW

Power-to-Gas

Commissioning 2023

FI

P2X Solutions
20 MW

Hydrogen & e-Fuels

Commissioning 2024

EU

Power-to-X projects
640 MW

Offtake

Agreement

1) Disclaimer: Please find the funding acknowledgement information on page 31

Our innovative SOEC electrolyzers utilize off-heat and CO_2

Renewable hydrogen
as feedstock for industries

Sunfire-HyLink SOEC

Sunfire-SynLink SOEC

Renewable syngas as feedstock
for renewable hydrocarbon products

Core Advantages

Market-leading efficiency of 84 %[1)]
reduces electricity demand for electrolysis

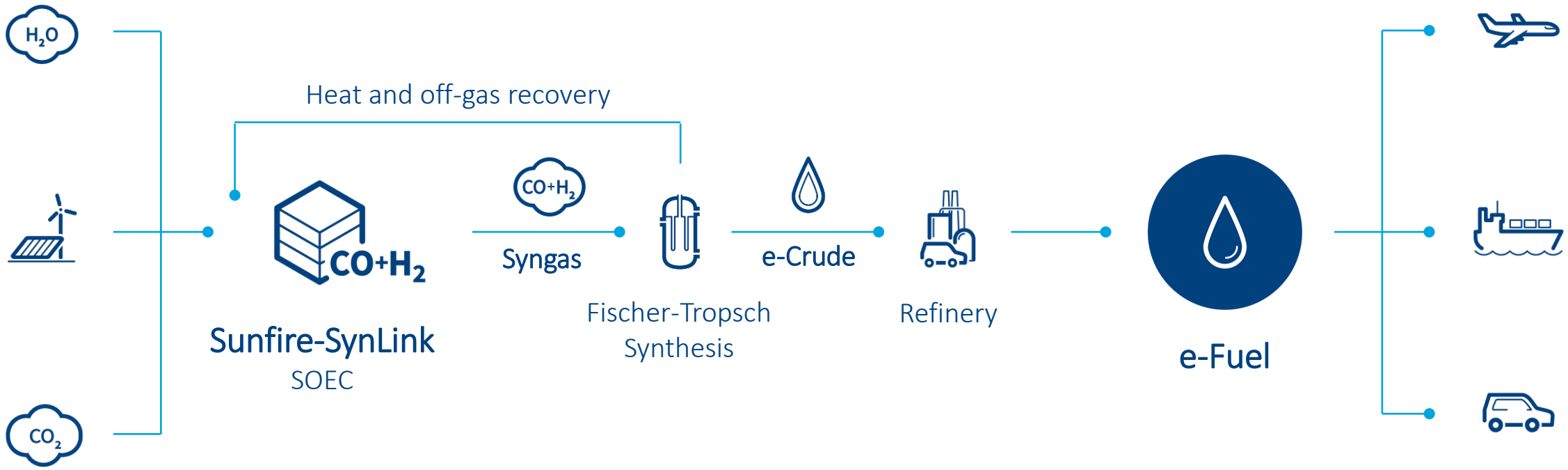
Direct conversion of CO_2 and H_2O to syngas
in one single process step

Utilization of industrial off-heat as steam
facilitates use of existing energy streams

1) lower heating value of hydrogen referred to AC power input

POWER-TO-LIQUID

Sunfire-SynLink SOEC enables a simple and efficient e-Fuel production



REFERENCES

SOEC has reached multi-megawatt scale

> 5 MW
Installed SOEC electrolysis capacity

> 10 industrial projects
with global companies

World's longest
SOEC operating experience

AT

MegaSyn
1 MW
SynLink SOEC

Refineries/e-Fuel

Commissioning 2023

NL

MultiPLHY
3 MW
HyLink SOEC

Refineries

Commissioning 2022

DE

e-CO_2Met
1 MW
HyLink SOEC

Chemicals

Commissioning 2022

DE

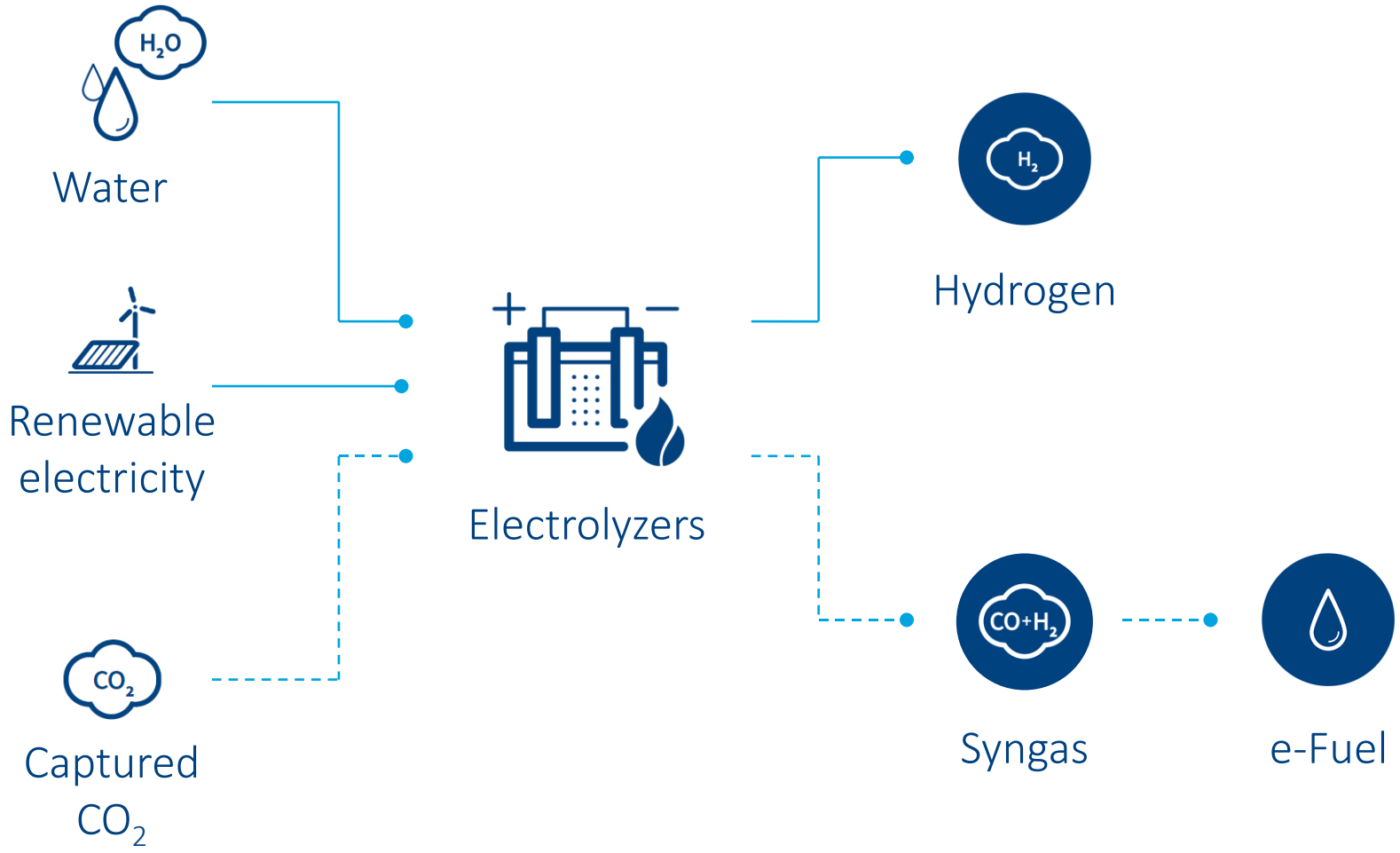
GrInHy2.0
1 MW
HyLink SOEC

Steel industry

Commissioned 2020

MISSION

We provide high-quality electrolysis solutions for industries



Alkaline and Solid Oxide (SOEC) Electrolyzers

SITES

We currently produce in Dresden, Solingen, Monthey & Neubrandenburg

SOEC Electrolyzers

Dresden, Germany (HQ)

- Cell, stack and system manufacturing
- R&D center

Alkaline Electrolyzers

Solingen (DE) & Monthey (CH)

- Stack manufacturing
- R&D center
- Electroplating

SOFC Fuel Cells

Neubrandenburg, Germany

- System manufacturing
- R&D center

Production upscaling in preparation

OUTLOOK

“Nothing is more powerful than an idea whose time has come.”

Victor Hugo, Poet & Politician

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GlobalSunfire Sunfire GmbH

Sunfire GmbH · Gasanstaltstrasse
2 01237 Dresden · Germany
www.sunfire.de

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